Amendments to the Claims

Claims 1-51 (previously canceled).

Claim 52 (currently amended). An electronic device, comprising:

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a substrate having a surface; and

an electronic circuit having interconnects formed on said surface of said substrate;

said electronic circuit including at least one microscopically small contact area;

said contact area including a microscopically small contact element disposed thereon having a base and a substantially straight part integrally formed at an oblique angle with said base and extending from said contact area in three dimensions in a direction deviating from a direction orthogonal to said surface of said substrate and parallel to said electronic circuit on said substrate, said part extending from said contact area being preformed and angularly disposed obliquely relative to said surface of said substrate in an unstressed condition.

Claim 53 (previously presented). The electronic device according to claim 52, in combination with an intermediate carrier having a contact connection area and flat conductors, wherein:

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said contact area of the electronic device is configured opposite the contact connection area of the intermediate carrier.

Claim 54 (previously presented). The electronic device according to claim 52, wherein:

said substrate is selected from the group consisting of a semiconductor chip and a semiconductor wafer; and

said electronic circuit includes at least one integrated circuit near said surface of said substrate.

Claim 55 (previously presented). The electronic device according to claim 52, wherein

said interconnects have ends; and

said at least one contact area includes a plurality of contact areas, each one of said plurality of said contact areas

configured on a respective one of said ends of said interconnects.

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Claim 56 (previously presented). The electronic device according to claim 52, wherein said contact element is elastically deformable.

Claim 57 (canceled).

Claim 58 (previously presented). The electronic device according to claim 52, wherein said contact element is pre-bent at a solid angle that deviates from a direction orthogonal to said surface.

Claim 59 (currently amended). The electronic device according to claim 52, wherein said surface of said substrate has a largest bulging area with a bulge protruding from said surface and having a length from said surface and said contact element has a length that is at least 5% greater than the length over which the bulge of said largest bulging area ~~of~~ protrudes from said surface of said substrate.

Claim 60 (previously presented). The electronic device according to claim 52, in combination with an intermediate carrier having a contact connection area and flat conductors, wherein:

C1 Cont. said contact area of the electronic device is configured opposite the contact connection area of the intermediate carrier; and

said contact element has a length that is at least 5% greater than a largest distance between said contact area and the contact connection area of the intermediate carrier.

Claim 61 (previously presented). The electronic device according to claim 52, wherein:

said substrate has a centrally located neutral point; and

said contact element has a length that is at least 5% greater than a largest length difference with regard to said centrally located neutral point of the substrate in an event of maximum thermal cycling.

Claim 62 (previously presented). The electronic device according to claim 52, in combination with an intermediate carrier having a contact connection area and flat conductors, wherein:

said contact area of the electronic device is configured opposite the contact connection area of the intermediate carrier;

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said substrate of the electronic device has a centrally located neutral point; and

said contact element has a length that is at least 5% greater than a largest length difference between said substrate and the intermediate carrier relative to said centrally located neutral point of said substrate in an event of maximum thermal cycling.

Claim 63 (previously presented). The electronic device according to claim 52, wherein said contact area and said contact element are produced from an identical metal alloy.

Claim 64 (previously presented). The electronic device according to claim 52, wherein said contact area is produced from an aluminum alloy and said contact element is produced from a gold alloy.

Claim 65 (previously presented). The electronic device according to claim 52, wherein said contact area is produced from an aluminum

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alloy and said contact element is produced from a copper alloy.

Claim 66 (previously presented). The electronic device according to claim 52, wherein said contact element is designed as a contact pin.

Claim 67 (previously presented). The electronic device according to claim 52, in combination with an intermediate carrier having a contact connection area and flat conductors, wherein:

said contact area of the electronic device is configured opposite the contact connection area of the intermediate carrier;

said substrate of the electronic device has a centrally located neutral point;

said contact element has a length that is at least 5% greater than a largest length difference between said substrate and the intermediate carrier relative to said centrally located neutral point of said substrate in an event of maximum thermal cycling;

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said contact area has a shortest linear dimension; and

said contact element is designed as a contact pin that has a diameter which is not greater than half of said shortest linear dimension of said contact area.

Claim 68 (previously presented). The electronic device according to claim 52, in combination with an intermediate carrier having a contact connection area and flat conductors, wherein:

said contact area of the electronic device is configured opposite the contact connection area of the intermediate carrier;

said substrate of the electronic device has a centrally located neutral point;

said contact element has a length that is at least 5% greater than a largest length difference between said substrate and the intermediate carrier relative to said centrally located neutral point of said substrate in an event of maximum thermal cycling;

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said contact element is designed as a contact pin having an end with a contact head; and

said end of said contact pin is remote from said contact area.

Claim 69 (previously presented). The electronic device according to claim 52, comprising:

a coating selected from the group consisting of a nickel coating and a gold coating;

said contact element is designed as a contact pin having an end with a contact head that is coated with said coating; and

said end of said contact pin is remote from said contact area.

Claim 70 (previously presented). The electronic device according to claim 52, comprising:

a coating made of a solderable metal alloy;

said contact element is designed as a contact pin having an end with a contact head that is coated with said coating; and

C1 cont. said end of said contact pin is remote from said contact area.

Claim 71 (previously presented). The electronic device according to claim 52, wherein

said contact element is designed as a contact pin having an end with a contact head made from solder; and

said end of said contact pin is remote from said contact area.

Claims 72-77 (canceled).

Claim 78 (withdrawn). A method for producing an electronic device having microscopically small contact areas and interconnects that are formed on a surface of a substrate and having three-dimensionally extending microscopically small

Claim 105 (currently amended). An electronic device, comprising:

a substrate having a surface; and

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an electronic circuit having interconnects formed on said surface of said substrate;

said electronic circuit including at least one microscopically small contact area;

said contact area having a shortest linear dimension and including a microscopically small contact element disposed thereon having a base and a substantially straight part integrally formed at an oblique angle with said base and extending from said contact area in three dimensions in a direction deviating from a direction orthogonal to said surface of said substrate and parallel to said electronic circuit on said substrate, said part extending from said contact area being preformed and angularly disposed obliquely relative to said surface of said substrate in an unstressed condition, and said contact element being configured as a contact pin having a diameter which is not greater than half of said shortest linear dimension of said contact area.

Claim 106 (currently amended). The electronic device according to claim 52, wherein said part extending from said base has a substantially ~~pin~~ pin-shaped configuration.

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Claim 107 (previously presented). The electronic device according to claim 52, wherein said part extending from said base has a free end opposite said base and is configured for detachably receiving a test head.

contact elements that are respectively integrally connected to the contact areas in one piece, the method which comprises:

patterning a conductive layer on a surface of a substrate to form interconnects and microscopically small contact areas;

applying a passivation layer to the patterned conductive layer;

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opening contact windows in the passivation layer in order to uncover the contact areas;

applying a closed conductive layer in order to connect the contact areas;

applying a masking layer to the closed conductive layer;

patterning the masking layer with through openings that extend to the closed conductive layer near the contact areas;

filling the through openings with conductive material to form three-dimensionally extending microscopically small contact elements that are respectively integrally connected to the contact areas in one piece;

removing the masking layer; and

removing the closed conductive layer.

Claim 79 (withdrawn). The method according to claim 78, which comprises using photolithography methods to perform the steps of patterning the conductive layer and opening the contact windows in the passivation layer.

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Claim 80 (withdrawn). The method according to claim 78, which comprises performing the step of applying the closed conductive layer using a technology selected from the group consisting of vapor-deposition technology, sputtering technology and deposition technology.

Claim 81 (withdrawn). The method according to claim 78, which comprises using a copper alloy layer as the closed conductive layer.

Claim 82 (withdrawn). The method according to claim 78, which comprises performing the step of applying the masking layer to the closed conductive layer using a process selected from the group consisting of spinning on, spraying on, and immersion.

Claim 83 (withdrawn). The method according to claim 78, which comprises using a photosensitive dielectric as the masking layer.

Claim 84 (withdrawn). The method according to claim 83, which comprises exposing the masking layer made of the photosensitive dielectric at a solid angle with respect to the contact areas in order to produce three-dimensionally angled contact elements.

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Claim 85 (withdrawn). The method according to claim 78, which comprises using photolithography to perform the step patterning of the masking layer.

Claim 86 (withdrawn). The method according to claim 78, which comprises using a resin layer as the masking layer that is applied to the closed conductive layer.

Claim 87 (withdrawn). The method according to claim 78, which comprises using a process selected from the group consisting of laser removal technology, ion beam sputtering, and plasma etching to perform the step of patterning the masking layer with through openings.

Claim 88 (withdrawn). The method according to claim 78, which comprises using electro-deposition to perform the step of filling the through openings with conductive material.

Claim 89 (withdrawn). The method according to claim 78, which comprises using electroless deposition technology to perform the step of filling the through openings with conductive material.

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Claim 90 (withdrawn). The method according to claim 78, which comprises using etching technology to perform the step of removing the closed conductive layer.

Claim 91 (withdrawn). The method according to claim 78, which comprises forming contact heads using a process selected from the group consisting of electrodeposition and an electroless process.

Claim 92 (withdrawn). The method according to claim 78, which comprises potting spaces between the contact elements.

Claim 93 (withdrawn). The method according to claim 92, which comprises performing the step of potting the spaces using a

technology selected from the group consisting of spraying technology and injection-molding technology.

Claim 94 (withdrawn). The method according to claim 78, which comprises:

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forming contact heads using a process selected from the group consisting of electrodeposition and an electroless process;

potting interspaces between the contact elements; and

uncovering the contact heads after performing the step of potting of the interspaces between the contact elements.

Claim 95 (withdrawn). The method according to claim 94, which comprises using laser removal technology to perform the step of uncovering the contact heads.

Claim 96 (withdrawn). The method according to claim 78, which comprises coating the contact heads with a metal selected from the group consisting of nickel and gold.

Claim 97 (withdrawn). A method for producing an electronic device having at least one microscopically small contact area, which comprises:

providing a substrate having a surface and a plurality of contact areas that are integrally connected to a plurality of three-dimensional microscopically small contact elements, the plurality of the contact areas being for at least one electronic circuit having interconnects located on the surface of the substrate;

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patterning a metal sheet to produce a plurality of uncovered contact spring contours having breaking locations that are

connected to the metal sheet and having uncovered ends which correspond in size, configuration and position to the plurality of the contact areas of the substrate;

aligning and pressing the patterned metal sheet onto the substrate so that the uncovered ends of the plurality of the contact spring contours are pressed onto the plurality of the contact areas;

heating the metal sheet and the substrate to bond the uncovered ends of the plurality of the contact spring contours to the plurality of the contact areas; and

cooling and stripping-off of the metal sheet, leaving behind three-dimensionally extending, bonded or soldered contact springs on each of the plurality of the contact areas.

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Claim 98 (withdrawn). The method according to claim 97, which comprises, before pressing the metal sheet onto the substrate, coating the uncovered ends of the plurality of the contact spring contours with a layer that is selected from the group consisting of a nickel layer and a gold layer.

Claim 99 (withdrawn). The method according to claim 97, which comprises coating the plurality of the contact spring contours with a solderable metal alloy near the breaking locations.

Claim 100 (withdrawn). The method according to claim 97, which comprises:

providing a spring-elastic material having a thickness between 30 and 100 μm with a solderable tin layer; and then

providing the material as the metal sheet that is patterned.

Claim 101 (withdrawn). The method according to claim 97, which comprises, before pressing the metal sheet onto the substrate, soft annealing regions of the plurality the contact spring contours.

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Claim 102 (withdrawn). The method according to claim 101, wherein the regions are central regions of the plurality the contact spring contours.

Claim 103 (withdrawn). The method according to claim 97, which comprises:

using a soft metal sheet as the metal sheet that is patterned; and

after the metal sheet has been stripped off, heat-treating the three-dimensionally extending contact springs to obtain a desired spring property.

Claim 104 (withdrawn). The method according to claim 97, which comprises providing the metal sheet as a copper alloy metal sheet having patterns. --